

**Remarks**

A request for a three month extension of time accompanies this response.

Applicant gratefully acknowledges the allowability of claims 20-22. Although the Office action clearly identifies claims 18 and 23 as being allowable on pages 2 and 10, Applicant believes those statements were made in error because these claims were rejected with particularity elsewhere in the Office action. Further, because claims 20 and 22 are not rejected with particularity in the body of the Office action, it is believed those claims were intended to be identified as allowable. If the Examiner wishes to reject claims 20 or 22, Applicant requests she do so in a non-final Office action to provide Applicant opportunity to respond.

**35 U.S.C. § 112 - Enablement**

To expedite allowance, Applicant canceled claim 2 thereby overcoming the enablement rejection. Applicant reserves the right to add a claim similar to claim 2 upon offering a showing of enablement. As the rejection has been overcome, Applicant requests the Section 112 rejection be withdrawn.

**35 U.S.C. § 112 - Indefiniteness**

Applicant amended claim 30 to replace "artificial machine" with "machine" thereby overcoming the indefiniteness rejection as suggested by the examiner. Applicant amended claim 31 to depend from claim 29 thereby overcoming the indefiniteness rejection. As the rejection has been overcome, Applicant requests the Section 112 rejection be withdrawn.

**35 U.S.C. § 101**

Applicant amended claims 33 and 34 to refer to "target" rather than "body" to overcome the rejection as suggested by the examiner. As the rejection has been overcome, Applicant requests the Section 101 rejection be withdrawn.

**35 U.S.C. § 102(b) - Suzuki**

Applicant requests reconsideration of the rejection of claims 1 and 24-27 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6416503 (Suzuki). Each of the claims recites apparatus for selectively moving hydrogen ions in aqueous solution comprising an electrical field generator which switches faster than 1 ms, and a low impedance electrical connection device which introduces said electrical field into a target **at a frequency greater than 1 MHz.**

Contrary to the assertion made in the Office action, Suzuki fails to disclose apparatus for selectively moving hydrogen ions in an organism. Instead, Suzuki discloses a system for iontophoreses comprising an electronic generator, an anode side matrix and a cathode side matrix. Further, Suzuki fails to disclose or suggest a low impedance electrical connection device that introduces an electrical field into a target at a frequency greater than 1 MHz. Although Suzuki discloses an electrical field in a frequency range between 100 Hz and 200 kHz, the claimed range is significantly higher. As a result, the claimed apparatus for selectively moving hydrogen ions in aqueous solution is different from the apparatus disclosed in Suzuki. Further, the claimed apparatus has efficacy that is totally unexpected in view of the cited prior art reference. Because of the new, improved and unexpected technical features and results provided by the claimed apparatus, the claims are novel and non-obvious. Accordingly, Applicant requests the Section 102 rejection be withdrawn.

**35 U.S.C. § 102(e) - Palti**

Applicant requests reconsideration of the rejection of claims 1, 3, 5, 7-10, 12-15, 18, 19 and 33-37 under U.S.C. § 102(e) as being anticipated by U.S. Patent Application Pub. 2004/0068296 (Palti). As discussed above, claims 1, 3, 5, 7-10, 12-15, 18 and 19 recite apparatus for selectively moving hydrogen ions in aqueous solution comprising an electrical field generator which switches faster than 1 ms, and a low impedance

electrical connection device which introduces said electrical field into a target **at a frequency greater than 1 MHz**. Claims 33-37 recite an **externally applied** medium as interface to lower the impedance between a target and an electrode comprising a low pH solution.

With respect to claims 1, 3, 5, 7-10, 12-15, 18 and 19 and in contrast to the assertion made in the Office action, Palti fails to disclose apparatus for selectively moving hydrogen ions in an organism. Rather, Palti discloses selective destruction of rapidly dividing cells in a localized area, and more particularly, an apparatus and method for selectively destroying dividing cells by applying an electric field having certain prescribed characteristics. Palti fails to disclose or suggest a device that introduces an electrical field into a target at a frequency greater than 1 MHz as recited in claim 1. As a result, the claimed apparatus is different from that disclosed by Palti and has a totally unexpected efficacy. The new, improved and unexpected technical features and results of the claimed invention prove it is novel and non-obvious.

With respect to claims 33-37, Palti discloses an interface medium between and electrode and its target, where the electrodes are located on an outer surface of a patient and the target is internal. Claim 33 requires an externally applied medium. Palti does not disclose or suggest an externally applied medium. The new, improved and unexpected technical features and results according to the claimed invention prove it is novel and non-obvious.

Accordingly, Applicant respectfully requests the Section 103 rejection be withdrawn.

### **35 U.S.C. § 102(e) - Kirsten**

Applicant requests reconsideration of the rejection of claims 1 and 28 under U.S.C. § 102(e) as being anticipated by U.S. Patent Application Pub. 2005/0252607 (Kirsten). As discussed above, claims 1 and 28 recite apparatus for selectively moving hydrogen ions in aqueous solution comprising an electrical field generator which

switches faster than 1 ms, and a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Kirsten describes a process for bonding substrates with hotmelt adhesive. Paragraph [0024] of Kirsten describes pressing a composite structure into a device suitable for the process. The device is not described. Thus, Kirsten fails to disclose a device having any of the elements required by the claims. Accordingly, Applicant requests the Section 102 rejection be withdrawn.

### **35 U.S.C. § 102(e) - Wittle**

Applicant requests reconsideration of the rejection of claims 1 and 28-30 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6877556 (Wittle). Each of the claims recites apparatus for selectively moving hydrogen ions in aqueous solution comprising an electrical field generator which switches faster than 1 ms, and a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Wittle describes a method is provided for recovering oil from a subterranean oil-bearing formation. In one embodiment, an electric field is created between electrodes (15, 16). The frequency of the component generating the electric field is preferably between 50 Hz and 2 kHz. (Column 3, lines 48-49.) Wittle also discloses that higher frequencies may be used if voltage is pulsated and wave shape is tailored. Wittle fails to disclose frequencies greater than 1 MHz as recited in the claims. Accordingly, Wittle fails to disclose a device having all of the elements required by the claims, and Applicant requests the Section 102 rejection be withdrawn.

### **35 U.S.C. § 103(a) - Herbst v Suzuki**

Applicant requests reconsideration of the rejection of claims 1, 2, 4, 7, 11, 17 and 32 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6029090 (Herbst) in view of Suzuki. Each of the claims recites apparatus for selectively moving

hydrogen ions in aqueous solution comprising an electrical field generator which switches faster than 1 ms, and a low impedance electrical connection device which introduces said electrical field into a target **at a frequency greater than 1 MHz.**

Herbst is directed to a multi-functional electrical stimulation system used in biological and bio-medical research, diagnostics and clinical treatment. (Column 1, lines 22-23.) According to Herbst, electrical stimulation is used for effecting nerve regeneration, neuromuscular research, medical diagnosis, medical treatment, and pulsed voltage electrophoresis. Given this background, there is no motivation for using Herbst to overcome the problem Applicant was addressing, namely selectively moving hydrogen ions in aqueous solution. When solving Applicant's problem, a broad disclosure such as Herbst related to electrical stimulation generally would not commend itself to solving the problem at hand. Thus, Herbst is non-analogous art and may not be used in rejecting the claims of the present application. Even if one were to study Herbst in spite of its non-analogous nature, this device fails to disclose or suggest apparatus having a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Suzuki is directed to a device for iontophoresis with improved drug availability. (Abstract.) Given this background, there is no motivation for using Suzuki to solve the problem addressed by Applicant of selectively moving hydrogen ions in aqueous solution. When solving Applicant's problem, a broad disclosure such as Suzuki related to improved drug availability would not commend itself to solving the problem at hand. Thus, Suzuki is non-analogous art and may not be used in rejecting the claims of the present application. If one were to study Suzuki in spite of its non-analogous nature, one would find Suzuki fails to disclose or suggest apparatus having a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Because both references individually fail to disclose or suggest a low impedance electrical connection device which introduces said electrical field into a target at a

frequency greater than 1 MHz, when combined they would also fail to disclose or suggest this element. Because each element is neither disclosed nor suggested by the cited references, the Section 103 rejection is improper and should be withdrawn.

### **35 U.S.C. § 103(a) - Suzuki v Hedgecock**

Applicant requests reconsideration of the rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Suzuki in view of U.S. Patent No. 6830550 (Hedgecock). Claim 6 recites apparatus for selectively moving hydrogen ions in aqueous solution comprising an electrical field generator which switches faster than 1 ms, and a low impedance electrical connection device which introduces said electrical field into a target **at a frequency greater than 1 MHz**.

As discussed above, Suzuki is non-analogous art and may not be used in a Section 103 rejection. Further, Suzuki fails to disclose or suggest a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Hedgecock is directed to a voltage actuated sensory nerve conduction threshold device using a stepped square wave voltage for bio-electric stimulation of nerve groups. (Abstract.) There is no motivation for using Hedgecock to solve the problem addressed by Applicant of selectively moving hydrogen ions in aqueous solution. When solving Applicant's problem, an unrelated bio-medical disclosure such as Hedgecock would not be consulted. Hedgecock is non-analogous art and may not be used in rejecting the claims of the present application. If one were disregard its non-analogous nature and study Hedgecock, one would not find a disclosure or suggestion of apparatus having a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Because both references individually fail to disclose or suggest a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz, when combined they would also fail to disclose or

suggest this element. Because each element is neither disclosed nor suggested by the cited references, the Section 103 rejection is improper and should be withdrawn.

**35 U.S.C. § 103(a) - Suzuki v Buchner**

Applicant requests reconsideration of the rejection of claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Suzuki in view of U.S. Patent No. 6745078 (Buchner). Claim 16 recites apparatus for selectively moving hydrogen ions in aqueous solution comprising an electrical field generator which switches faster than 1 ms, and a low impedance electrical connection device which introduces said electrical field into a target **at a frequency greater than 1 MHz.**

As discussed above, Suzuki is non-analogous art and may not be used in a Section 103 rejection. Further, Suzuki fails to disclose or suggest a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Buchner is directed to a procedure and machine for causing muscle fasciculation and contraction relaxation cycles that effectively pump blood through the microcirculation, draining the venous beds and raising the tissue oxygen levels. There is no motivation to consult Buchner to solve the problem of selectively moving hydrogen ions in aqueous solution. When solving Applicant's problem, an unrelated bio-medical method and device such as Buchner would not be consulted. Buchner is non-analogous art and may not be used in rejecting the claims of the present application. If one were disregard its non-analogous nature and study Buchner, one would not find a disclosure or suggestion of apparatus having a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Because both references individually fail to disclose or suggest a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz, when combined they would also fail to disclose or

suggest this element. Because each element is neither disclosed nor suggested by the cited references, the Section 103 rejection is improper and should be withdrawn.

### **35 U.S.C. § 103(a) - Palti v Spiegel**

Applicant requests reconsideration of the rejection of claim 23 under 35 U.S.C. § 103(a) as being unpatentable over Palti in view of U.S. Patent Application Pub. 2003/0093028 (Spiegel). Claim 23 recites apparatus for selectively moving hydrogen ions in aqueous solution comprising an electrical field generator which switches faster than 1 ms, and a low impedance electrical connection device which introduces said electrical field into a target **at a frequency greater than 1 MHz.**

Palti relates to an article of clothing to selectively destroy dividing cells in living tissue. (Abstract.) There is no motivation to consult Palti to solve the problem of selectively moving hydrogen ions in aqueous solution. When solving Applicant's problem, an unrelated bio-medical device such as Palti would not be consulted. Palti is non-analogous art and may not be used in rejecting the claims of the present application. If one were to disregard its non-analogous nature and study Palti, one would not find a disclosure or suggestion of apparatus having a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Spiegel discloses a method and apparatus using time changing magnetic fields to induce electric currents throughout a treated volume of human blood, bone, tissue, organs, or nerves. Spiegel fails to disclose or suggest apparatus having a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz.

Because both references individually fail to disclose or suggest a low impedance electrical connection device which introduces said electrical field into a target at a frequency greater than 1 MHz, when combined they would also fail to disclose or



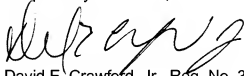
suggest this element. Because each element is neither disclosed in nor suggested by the cited references, the Section 103 rejection is improper and should be withdrawn.

**Conclusion**

If the Commissioner determines an additional fee is due, he is hereby authorized to charge said government fees to Deposit Account No. 19-1345.

As the application is believed to be in condition for allowance, a favorable action and Notice of Allowance are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'David E. Crawford, Jr.', is written over the typed name and address.

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